



PEW PEW
— TACTICAL —

/10-steps-to-building-a-glock-using-a-polymer80-pf940-frame-kit/

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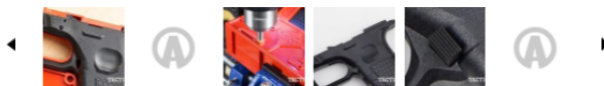
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Glock 17 Build Polymer80 PF940

Step 3: With the jig still in the vise, drill out the three holes on the side of the frame. Do not use the drill press for this; use your hand drill. Each of the holes are marked on the jig with the size of the proper drill bit. These bits are included in the Polymer80 kit. Just match the bit to the jig hole, and drill a hole in the frame. Do not drill through the opposite side of the frame. When all of the holes on one side are drilled, flip the jig around and drill out the three holes on the other side of the frame. Again, be cautious not to drill into the opposite side of the frame, and do not use the drill press for this portion of the machining.



0 Comment(s)



Building your own gun isn't difficult. In fact, it's dead simple. At one time, I believed there was something mystical about building your own firearm. It seemed only someone with an engineering degree and years of training on a CNC machine could accomplish such a feat. Then I took the plunge and built my own AR-15 from an 80-percent lower that I machined in my garage. The gun shot great, and I had broken through the mental barrier on what I could accomplish with some simple tools and a little effort. The next project that caught my eye was the **Polymer80 PF940** incomplete pistol frame. Essentially a handgun equivalent to an 80-percent AR lower, the PF940 lets you build a full-sized pistol using Glock parts. It's not exactly a Glock clone, as the shape, style and construction are significantly different. However, the slide, barrel, magazines and all other parts from Glock pistols work.

- **RELATED STORY: 8 Steps For DIY Silicon Carbide Coating Your Grip**

The Polymer80 PF940 frame is designed to work with third-generation 9mm, .40 S&W and .357 SIG Glock parts. For this build, I went with standard Glock 17 parts. However, I could have also gone with parts kits for the Glock 17 L, G22, G24, G31, G34 or G35. Completion parts are available in individual pieces from major gun supply shops such as Brownells and Midway USA. However, several specialty suppliers—such as **Lone Wolf Distributors** and **GlockStore**—offer everything from completion kits to race gun parts for the PF940.

Why would you build your own handgun? Various reasons, including the satisfaction of creating something or wanting to build something that isn't available from any manufacturer. For example, Polymer80 offers frames in four colors—something that isn't available on most pistols. Then you can add your own stippling, a custom slide and an enhanced trigger. Competitive shooters have been building their own 1911-style pistols for decades, and now you can compete with your own hand-built polymer gun.

You can use various methods to complete the Polymer80 PF940 pistol frame. First, the PF940 comes with a jig and the appropriate drill and milling bits. The company offers detailed Instructions that seemed to work pretty well. For this particular method, you will need a sturdy vise, a hand drill, a finishing file, 220-grit sandpaper, a drill press with a cross vise and blue or red Loctite.

For this article, I deviated from the company's suggested method and used a



TRENDING



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Polymer80 PF940C (not a firearm...yet)

Polymer80's Glock **PF940Cv1** (compact like the Glock 19) and **PF940v2** (standard size like the Glock 17) allow mostly everyone to build an **unregistered firearm** at home provided you they legally own one already.

Price

\$ – \$

 \$84 \$100

 Reset

ALL CATEGORIES

80% BLANKS

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922R COMPLIANCE PARTS

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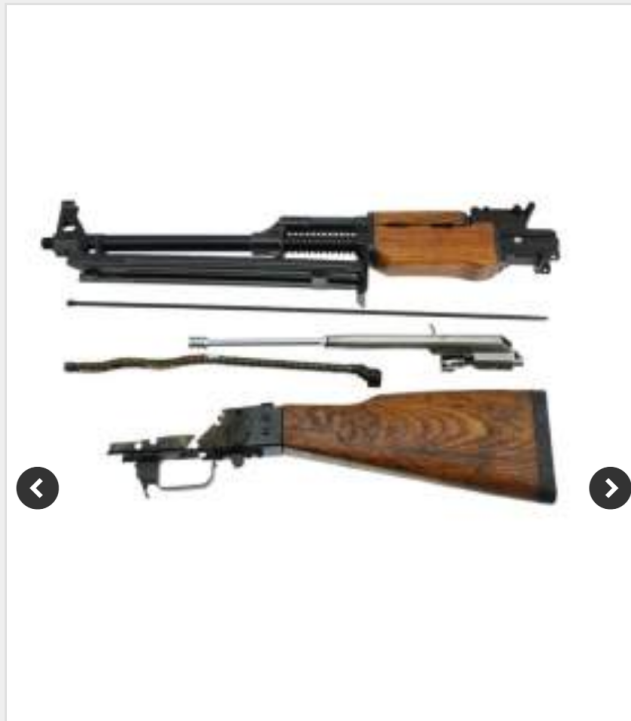
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Warehouse & Storage Safety

HEALTH & SAFETY WAREHOUSE MANAGEMENT

The Law

The Workplace (Health, Safety and Welfare) Regulations 1992 place duties on employers to ensure that the workplace is safe and maintained in good order.

The importance of health & safety management in the warehouse:

- The Workplace (Health, Safety and Welfare) Regulations 1992 place duties on employers to ensure that the workplace is safe and maintained in good order, including providing the workforce with sufficient Health & Safety training.
- Warehousing is a complex industry that can expose workers to a number of risks
- Health & Safety must be proactively managed.
- Effective health and safety management involves the employer identifying the risks that arise in the workplace.
- Adopting reasonable health and safety measures to control the risks that may arise.



CAUSES OF INJURY

There are many potential causes of injury in a warehouse. The most common causes of injury include:

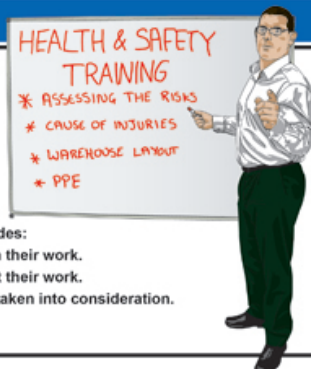
- Slips, trips and falls
- Impact with objects and structures
- Being hit by moving or falling objects
- Falls from height
- Incorrect manual handling



TRAINING

Providing employees with sufficient training is vital in the prevention of accidents in warehouses.

- All employees should be provided with basic health & safety training during their induction.
- Employees should also be provided with specific training related to their work, this includes:
 - The hazards associated with their work.
 - Equipment used to carry out their work.
 - Precautions that should be taken into consideration.



PALLET STORAGE

- Pallets should be of sound construction and strong for cargoes and of the conditions under which they are used.
- Where pallet loads are stacked tier on tier, the heaviest items should be stacked at the bottom to allow support to the weight above.
- Pallets should be loaded correctly to ensure load stability; shrink or stretch wrap can help with this. Avoid stack heights to ensure contents do not collapse.
- Inspect pallets each time before use to make sure that they are in a safe condition.
- Items that can cause damage to materials should either be taken out of use until repaired, or be destroyed.
- When using pallet racking in the warehouse, take into account the pallets used are suitable for the type of racking available.
- Pallets can be stacked / stored by block stacking or using stacking frames, single-depth pallet racks, double-depth pallet racks, drive-in racks, pallet flow racks and push back racks.



CONDUCTING A RISK ASSESSMENT

A risk assessment is a careful examination of what in the work could cause harm to people, so that it can be evaluated whether enough precautions have been taken or should more be done to prevent harm.

Risk assessment can be summarised into 5 steps:

01. Identifying the hazards.
02. Deciding who might be harmed and how.
03. Evaluating the risks and deciding on precautions.
04. Recording your findings and implementing them.
05. Reviewing your risk assessment and updating procedures if necessary.



WAREHOUSE DESIGN & LAYOUT

It is important to provide a safe and healthy environment for your employees and visitors.

- Warehouses should be designed and laid out to allow for the safe movement of goods, materials and people.
- Good design and layout can help reduce accidents, including vehicles and people slipping and tripping.
- It is important to have a safe system of traffic movement.
- Methods and procedures for arrival, reception, unloading, loading and movement of vehicles within the premises should all be taken into consideration.
- People and vehicles should be segregated as far as is reasonably practicable.

When thinking about design and layout the following areas should be taken into consideration:

- Storage areas, aisles and gangways.
- Designated pedestrian traffic routes.
- Staircases and ramps.
- Emergency escape routes.



RACKING INSPECTIONS

Inspect racking regularly to make sure it is prepared and maintained properly and is safe.

There are 3 types of inspections:

01. Immediate reporting of damage and defects
02. Visual inspections at regular intervals and
03. "Expert" inspections carried out at intervals by a competent person

What to check?

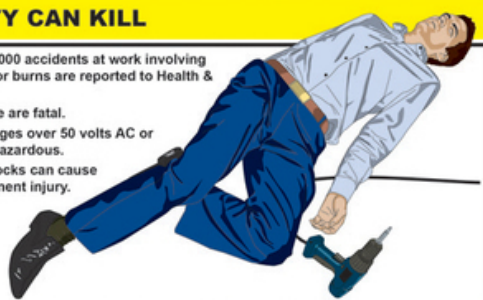
- Are the racks plumb and level?
- Is there rust or corrosion on any metal component?
- Is the rack overloaded?
- Uprights - Are they bent or damaged? How bad is the damage?
- Checking the load beams for damages and deflection
- Are the beams properly attached to the uprights?
- Are the clips, bolts, or safety pins, or beam attachment pins missing or damaged?
- Keep a record of inspections, damages and repairs, e.g. in a logbook. It will help track the regularity and thoroughness of the inspection process in the event of any future issue.



Electrical Safety

ELECTRICITY CAN KILL

- + Each year about 1000 accidents at work involving electrical shocks or burns are reported to Health & Safety Executive.
- + Around 30 of these are fatal.
- + Shocks from voltages over 50 volts AC or 120 volts DC are hazardous.
- + Even non-fatal shocks can cause severe and permanent injury.



WHAT DO THE REGULATIONS REQUIRE?

The Health and safety at Work Act 1974 states that:

- + Employers are responsible for ensuring the safety and health of their employees and the public, if they are at risk from work activities.

The Electricity at Work Regulations 1989 states that:

- + Electrical systems must be constructed in a way that prevents danger.
- + Employers, employees and the self-employed must maintain electrical systems as necessary to prevent danger.
- + Employers, employees and the self-employed should carry out work on electrical systems in a manner that prevents danger.
- + Electrical equipment used in hazardous environments must be constructed or protected to prevent it becoming dangerous.
- + Only those with competent knowledge or experience or under adequate supervision should work with, or on, electrical equipment that could cause danger or injury.



The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 requires employers, and other people who are in control of work premises, to report:

- + Work-related deaths
- + Major injuries
- + Certain 'dangerous occurrences'

For example an injury resulting from an electric shock or electrical burn leading to unconsciousness, resuscitation or admittance to hospital for more than 24 hours must be reported.
If electrical short circuits or overloads causing a fire or explosion, which results in the stoppage of the plant for more than 24 hours or has the potential to cause death, the event must be reported.

How to report?

- + Online at www.hse.gov.uk/ridor completing the appropriate online report form.
- + By Telephone only in the case of fatal and major injuries only. Call the Incident Contact Centre on 0845 300 9923.

ASSESSING THE RISKS

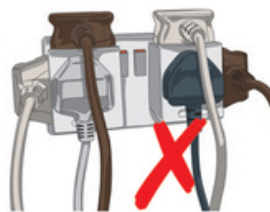


Risk assessment consists of 5 steps:

01. Identifying the hazards.
02. Deciding who might be harmed and how.
03. Evaluating the risks and deciding on precautions.
04. Recording your findings and implementing them.
05. Reviewing your risk assessment and updating it if necessary.

Most common risks come from:

- + Contact with live parts.
- + Electrical faults, the risks are greatest where the equipment contains a heat source.
- + Flammable or explosive atmospheres.
- + Harsh conditions where unsuitable equipment can easily become live and make its surroundings live and dangerous.
- + Confined spaces, where, if an electrical fault develops it will be difficult to avoid a shock.
- + Equipment such as extension leads and flexible leads which are particularly liable to damage.



PORTABLE APPLIANCE TESTING (PAT)

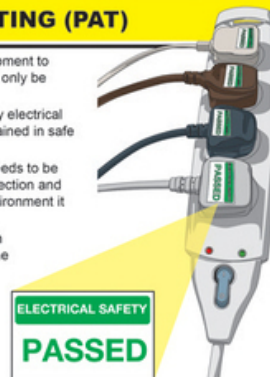
PAT is the examination of electrical appliances and equipment to ensure they are safe to use as some types of defect can only be found by testing.

The Electricity at Work Regulations 1989 require that any electrical equipment that has the potential to cause injury is maintained in safe condition.

There are no specifications in the regulations on what needs to be done, by whom or how frequently. The frequency of inspection and testing depends upon the type of equipment and the environment it is used in.

Testing should be conducted by a competent person with appropriate equipment and the knowledge to carry out the tests and to understand the results.

Labeling equipment that has been inspected or tested as well as keeping records is not a legal requirement but can be a useful management tool for monitoring and reviewing the maintenance scheme.



REDUCING THE RISKS FOR EMPLOYERS

Ensure people working on or with electrical equipment or systems are 'competent' for the task.

Ensure the electrical installation

- + Complies to BS 7671:2008 Requirements for electrical installations.
- + Is maintained in a safe condition.

Enough socket outlets are provided.

Provide safe and suitable equipment

- + Equipment must be suitable for its working environment.
- + Consider using air, hydraulic or hand-powered tools in harsh conditions.
- + Provide a switch near each fixed machine to cut off power in an emergency.
- + Replace damaged sections of cable completely.
- + Special electrical equipment should be used in potentially flammable or explosive atmospheres.
- + Consider asking for specialist advice.

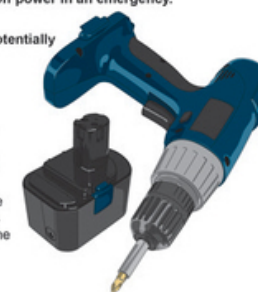


Reduce the voltage

- + Temporary lighting can be run at lower voltages.
- + Battery-operated tools are safest.
- + Portable tools designed to be run from a 110 volt centre-tapped-to-earth supply are available.

Provide a safety device, such as a residual current device (an RCD), if equipment operating at 230 volts or higher is used. An RCD is a device which detects some faults in the electrical system and rapidly switches off the supply.

A competent person should carry out preventative maintenance periodically.



REDUCING THE RISKS FOR EMPLOYEES

Visual inspection should also be done by employees.

Work safely

- + Suspect or faulty equipment must be taken out of use, labeled 'DO NOT USE' and kept secure until examined by a competent person.
- + If possible, tools and power socket outlets should be switched off before plugging in or unplugging.
- + Equipment should be switched off and/or unplugged before cleaning or making adjustments.

Always expect that cables will be present and live when digging in the street, pavement or near buildings.
Have overhead electric lines switched off if possible or maintain safe working distance from the lines.

The line or track operating company must be consulted before starting work near electrified railways or tramways.



**ELECTRICAL SAFETY
FAILED**





Electric Shock



DANGER

1.

If you suspect someone has received an electric shock you must ensure all power sources are isolated before you can treat the casualty.

HIGH VOLTAGE

Overhead power cables are an example of a power source generating high voltage electricity. High voltage electricity has the ability to jump or arc up to distances of 10 metres or more. If faced with a casualty resulting from high voltage electricity:

DO NOT APPROACH: Stay at least 20 metres away from the casualty until the power has been switched off by an official agency (i.e. Electricity Board).

LOW VOLTAGE

If faced with a casualty who is in the process of receiving an electric shock you should:

1. Attempt to turn the power off at the source.
2. Remove any cables/power leads etc., and in contact with the casualty.

ACTION TO TAKE

1. Isolate yourself from the ground with bricks / newspapers / rubber matting.
2. Use an object of low conductivity (i.e. a wooden broom or rolled up newspapers) to push away the power source from the casualty.



RESPONSE

2.

To give your casualty the optimum chance of survival you must quickly assess their level of response. A rapid assessment will allow effective treatment to be administered and will also enable accurate information to be passed on to the ambulance service.

"Are you alright?"
"Can you hear me?"



Check for the shoulders at the same time.

AIRWAY

3.

OPEN THE AIRWAY

Use the chin and tilt the head.

ASSESS FOR BREATHING

Look for rise and fall of the chest.

Listen for sounds of breathing.

Feel for air on your cheek.

Carry this out for up to 10 seconds. If breathing is present go straight to section 6.

NOT BREATHING

If the casualty is not breathing, give 2 rescue breaths as below:

1. Pinch the nostrils with your thumb and forefinger. Keep a good airway extension.
2. Seal your mouth over the casualty's mouth and ventilate until you see the casualty's chest rise.

Remove your mouth from the casualty's mouth between rescue breaths.



CIRCULATION

4.

TRAINED HEALTHCARE PROFESSIONALS

Check for a pulse for 10 seconds.

TRAINED FIRST AIDERS

Observe for any signs of circulation, such as movement or any attempt to begin breathing.

CIRCULATION PRESENT

1. If breathing is still absent, administer sets of 10 rescue breaths and re-check circulation.
2. If you are unaccompanied apply 10 rescue breaths, then get help and re-assess the casualty upon your return.

CIRCULATION & BREATHING ABSENT

1. Continue sets of 2 rescue breaths with 15 compressions, as shown in section 5.
2. If you are unaccompanied provide 4 cycles of 2 rescue breaths and 15 compressions (see section 5), then help and re-assess upon your return.



CHEST COMPRESSION

5.

1. Kneel beside the casualty and locate the lower rib and brace up the ribs to the sternum (breast bone).
2. Put your middle finger on this point and put the index finger next to it.
3. Place the heel of the hand next to the fingers then place the other hand over it.
4. Interlock your fingers.
5. Keeping the arms and back straight press down about approximately 1/3 of the chest depth. Do not remove the hands between each compression.
6. Compress the chest as described 15 times. It should take between 9-10 seconds to complete each set of 15 compressions, i.e. at a rate of 100 per minute. You may find it useful to count 1, 2, 3 etc. to help you keep the correct rate. After the 15th compression, give another 2 breaths.



ONLY 3-STEP RESUSCITATION PROCEDURE (P):

1. The casualty revives.
2. Professional help arrives.
3. You become physically exhausted.
4. Your own life is in danger.



UNCONSCIOUSNESS

6.

1. To assess for any other injuries, carry out a quick head to toe check.
2. Remove any sharp objects from pockets.
3. Place the nearest arm at a right angle to the body.
4. Cross the furthest arm, across the chest and place the back of the hand across the chest.
5. Rotate the furthest leg by grasping the back of the knee.
6. Gently pull on the knee so that the casualty's groin over onto your knee.
7. Shuffle back on your knees until the casualty is fully over and stable.
8. Re-check the airway, breathing and circulation.
9. Draw up the leg at a 90 degree angle.
10. Keep monitoring the Airway, Breathing and Circulation and treat any other injuries.

If you are a trained first aider, you may use a different recovery position. If this is the case, advise the position that you've been trained to use.



OTHER INJURIES

7.

BURNS

Exposure to electricity can cause burns to the skin and, in severe cases, internal organs. In such cases the electricity may, for example, enter via a hand and leave via the foot causing entry and exit burns.

CONSCIOUS CASUALTIES

Cool burns for a maximum of 10 minutes under cold water.

UNCONSCIOUS CASUALTIES

Cool the burn with wet dressings after placing them in the recovery position.



MUSCLE SPASMS/SEIZURES

These may be present for some time after the exposure to electricity and indicate a seriously ill casualty. During any seizures, protect the casualty from harm e.g. banging their head, but do not restrain them, and monitor the situation.

CASUALTIES WITH NO APPARENT INJURY

If no injury is present and the casualty appears well, it is still advisable to take the casualty to hospital or medical facility for a check up, as certain organs/symptoms within the body may be affected several hours after a shock.

GETTING HELP

8.

REPORT THE INCIDENT

Call the relevant authority for a detailed form.

DIAL 999 IN UK (112 IN EUROPE)

The operator will ask you which service you require. Once you have stated 'ambulance' you will be connected to ambulance control. The operator will ask you a set of questions. Do not hang up at any stage of the conversation. The operator will terminate the call when appropriate.

ISOLATE OR CORDON OFF THE EXPOSED, DAMAGED OR FAULTY ELECTRICAL SOURCE

As soon as possible after the casualty has been taken to hospital report the incident to the local supervisor. Give all information you can as an RFF needs to be completed for all accidents and incidents. Leave details about yourself so that you can be contacted about the next steps. Report defective equipment that caused the shock (if applicable) so that repairs can be made.

RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995)



Work at Height

1. The Regulation

The Work at Height Regulations 2005 and the Work at Height (Amendment) Regulations 2007 apply to all those working at height where there is a risk of a fall.

Each year in the UK there are approximately 50 fatalities and over three thousand major injuries caused by falls.

The regulations have been made in order to try to prevent death and injury from falls at work.

The regulations cover working "at height" meaning the person could be at risk of falling, so this may be below ground level.



2. Duty of Care

The regulations place a duty of care on all employers, the self employed and those in control of others work to the extent that they control the work.

There are three main principles

- Avoid work at height whenever possible.
- If work at height cannot be avoided then use equipment to prevent falls.
- Where the risk of a fall cannot be completely eliminated then use other measures to minimize the risk, such as fall arrest equipment.

Those in control of work must ensure that:

- Work at height is properly planned and organised.
- Where applicable weather conditions are considered.
- Those involved in work at height are fully trained and competent.
- The work area and equipment have been inspected and are safe.
- The work has been risk assessed.
- An emergency plan is in place in case of an accident.



THINK: Access, Equipment, Weather, Emergency Procedures.

3. Ladders

Ladders and stepladders are the most commonly used pieces of access equipment. Before using a ladder an assessment should be made as to the suitability of a ladder for the task involved or whether an alternative piece of equipment may be used which is safer.

Where the use of a ladder can be justified, then the following criteria should be followed:

- Short duration work
- Light work not involving heavy lifting
- A secure hand hold is available
- Ladder is secure and stiles are tied
- Do not overreach
- Ensure a 1 in 4 angle is maintained and the ladder is long enough for the job without overreaching.



4. Mobile Elevating Work Platforms (MEWPS)

Where it is not possible to carry out work at height from an existing structure then mobile access equipment can be used.

- Before a mobile platform is used the risk of an accident must be assessed, the work must be planned, and the operator fully trained in its operation.
- The equipment should have a current inspection report and the area around the platform be clear of obstruction, if outside then the weather conditions should be considered as high winds can make them unstable.
- When using the platform, it should be kept clear of overhead cables and the ground should generally be level.
- Ensure that workers do not climb out of the carrier and that limbs are kept clear of passing traffic or other obstacles.
- For additional safety where a risk of a fall is still a possibility ensure that the worker is secured to the carrier with a harness.
- After use, ensure that the power is switched off and the keys removed.
- Tools and other equipment should be cleared out of the carrier and if the platform is being left unattended it should be made as inaccessible to vandals as possible.



5. Scaffolding

Scaffolding should be one of the safest forms of access to working at height. This will only be the case however if suitable precautions are considered.

- Scaffolding should be planned, designed and erected by competent people.
- Scaffolders should adopt safe working methods and wear harnesses during the erection phase.
- The ground should be level and firm enough to support the scaffolding and the area should be clear of passers by and obstacles whilst being constructed.
- The scaffold structure should be braced and tied into a permanent structure.
- The scaffold must be able to support the load and be appropriate for the work involved.
- Work areas should be fully boarded, a minimum of 600mm wide, loading areas should have fall protection gates and guard rails and toe boards should be installed to prevent falls.
- Scaffolding should always be checked if conditions change e.g. in high winds

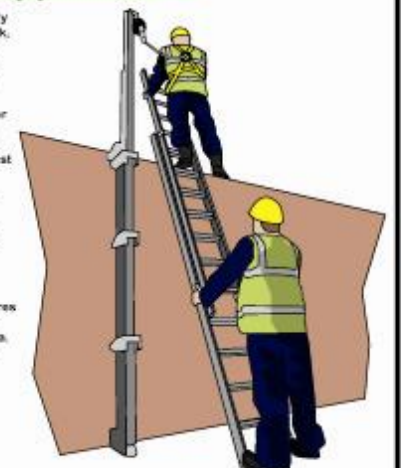


THINK: Access, Equipment, Weather, Emergency Procedures.

6. Fall Arrest

Measures should be in place to prevent falls if work at height cannot be avoided. If using work equipment such as MEWPS is not possible then the use of a safety harness is required to prevent injury should a worker fall.

- The use of a safety harness is only acceptable for short duration work, and the lanyard must be kept as short as possible preventing the worker from getting close to the danger area.
- Where it is necessary to work near to an open edge and there is no alternative option then a harness can be used to arrest a fall as a last resort.
- This should only be done where a secure anchor point can be found and that all operatives are fully trained and are wearing the harnesses correctly.
- Before using a safety harness ensure it has been thoroughly inspected as many man-made fibres perish over time especially if not stored properly in a clean dry area.
- An emergency plan should be in place, with a method to recover anyone who does fall.

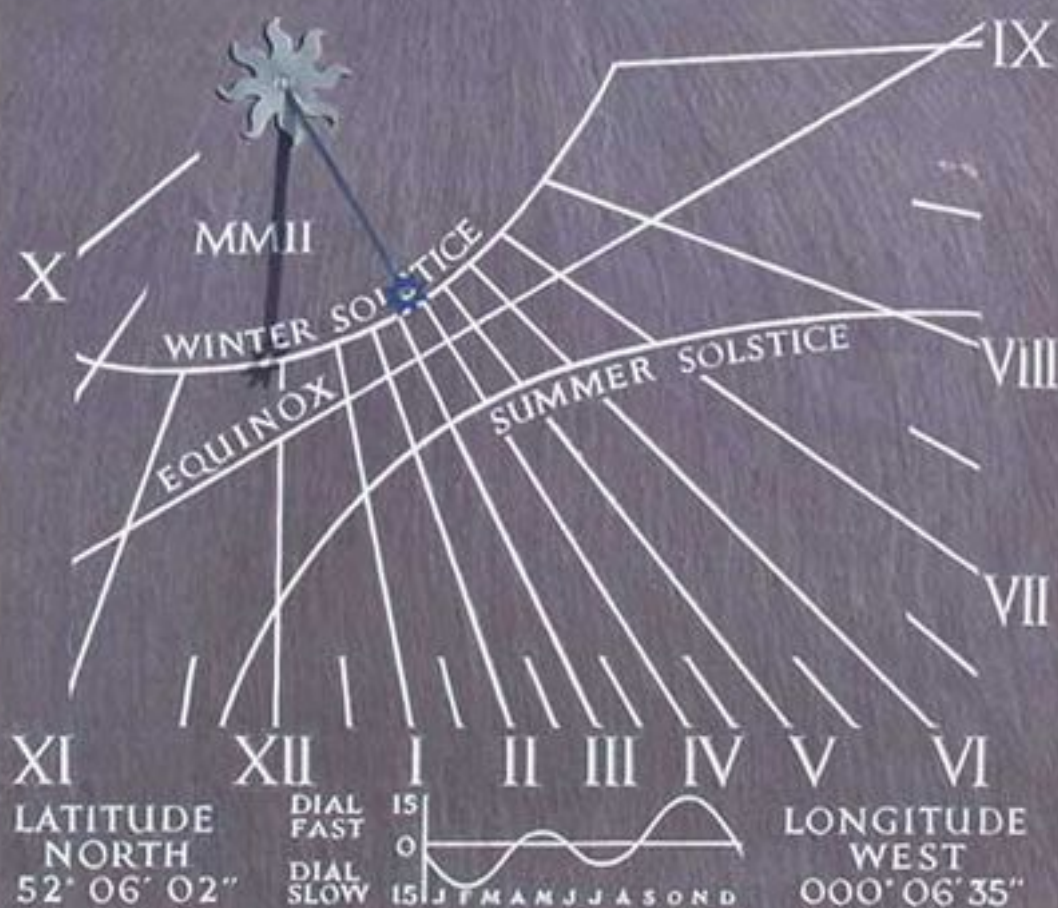






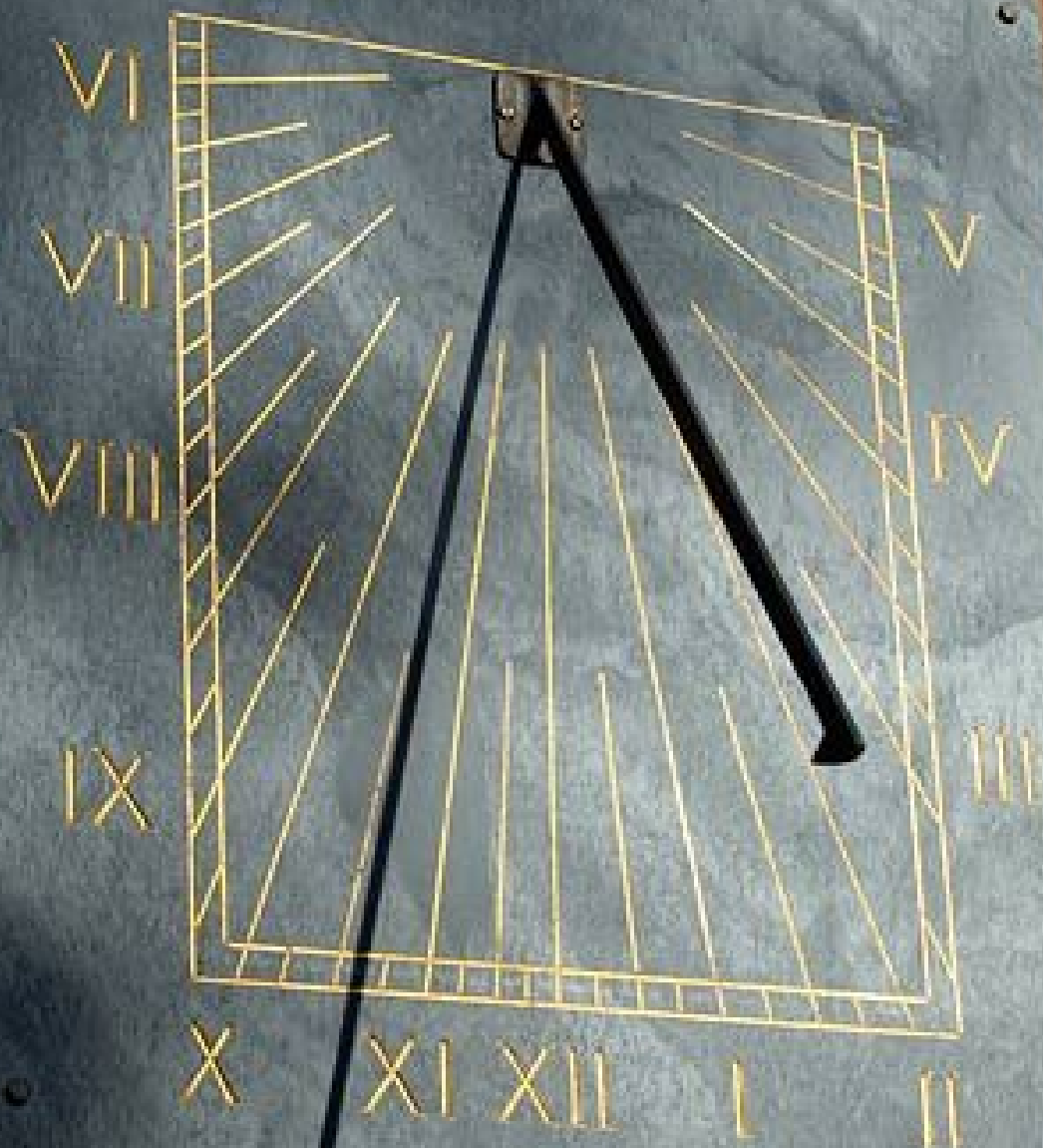
TIME
IS
A SHADOW

LUX·POST·UMBRAM



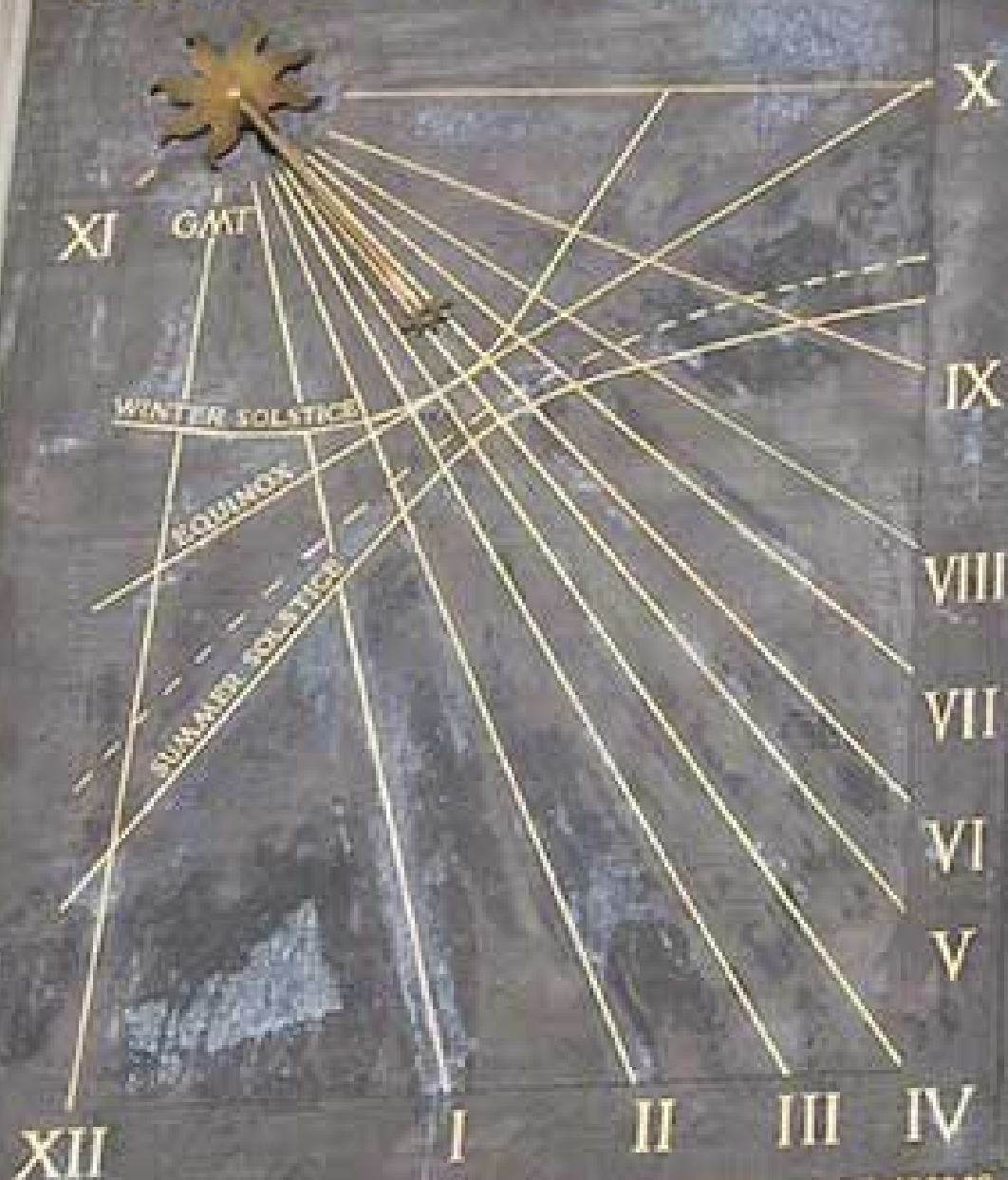
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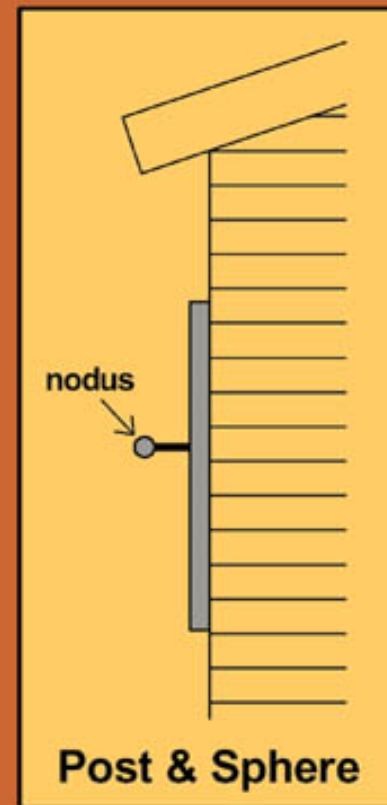
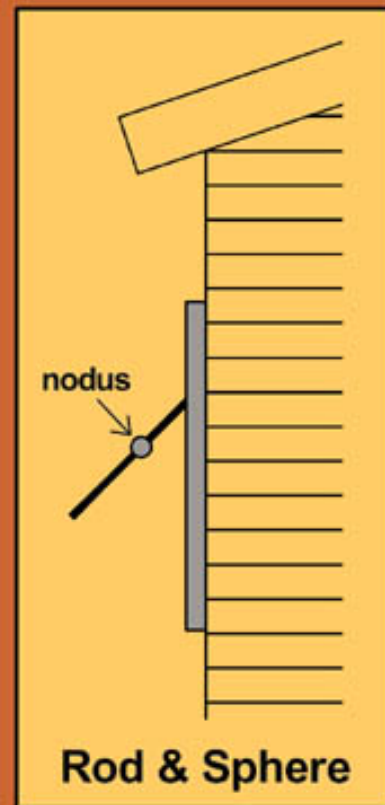
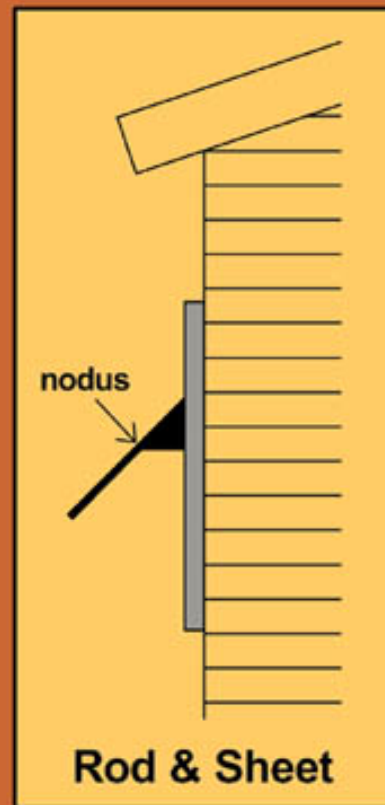
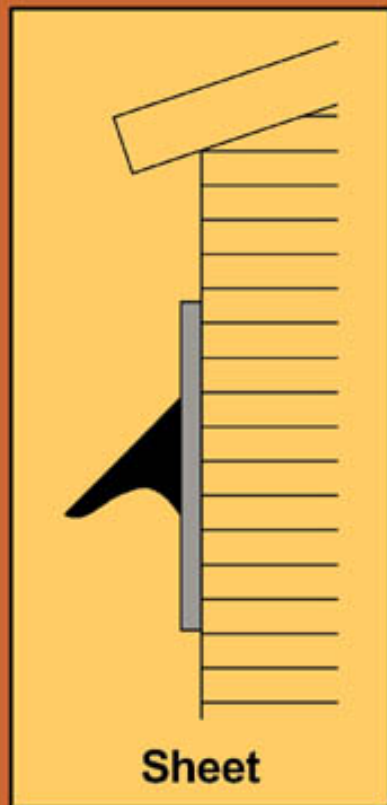
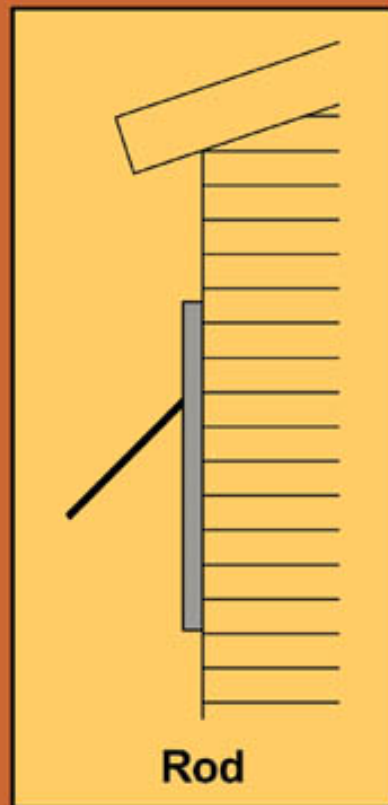


D. HARBER

SUPER COLLEM SÆTIGERUM SEPTEM
SEMPER LUCEAT SOL



UPON SEVEN BRISTLE HILL / LET THE SUN SHINE STILL // AGR 080808

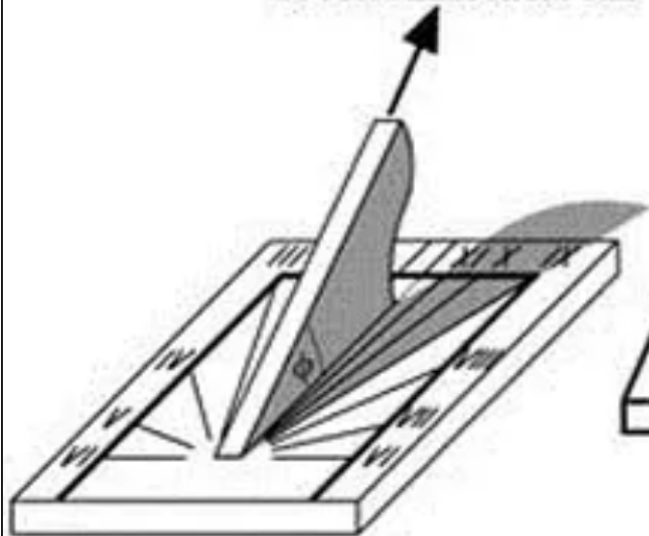


Gnomon Types



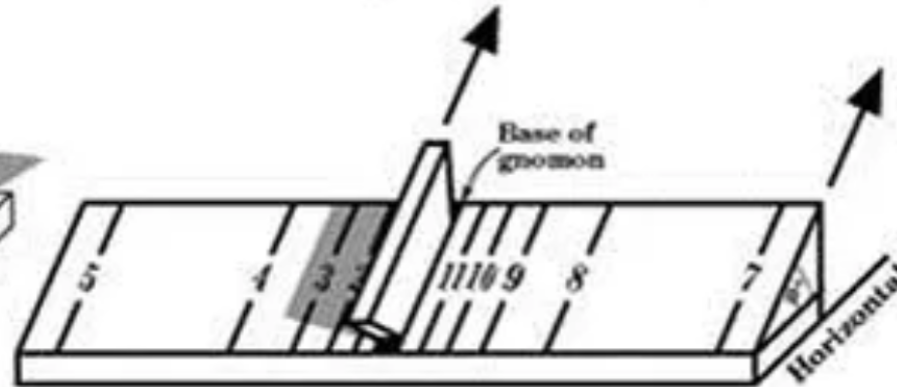


SOUTH CELESTIAL POLE

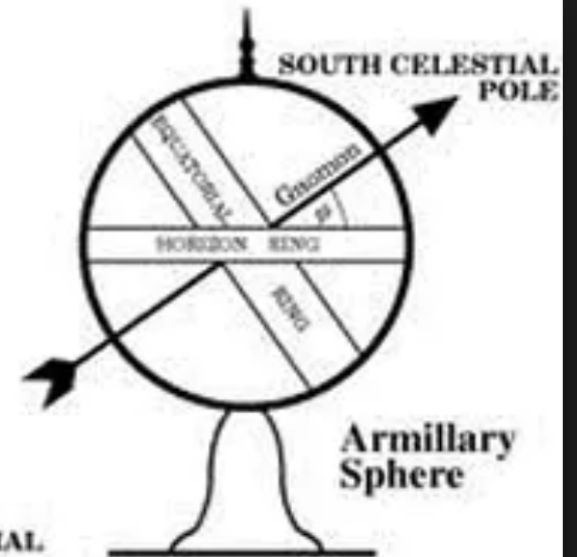


Horizontal

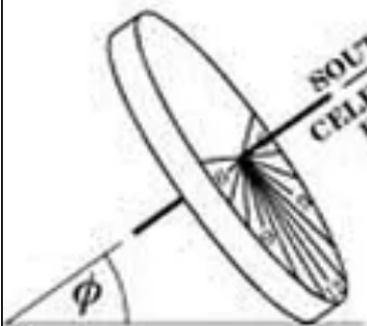
SOUTH CELESTIAL POLE



Polar

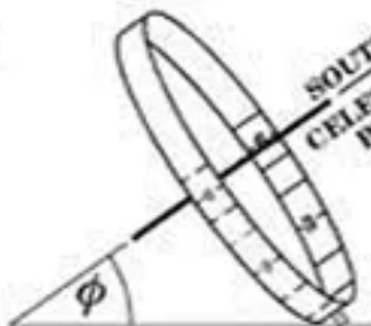


SOUTH
CELESTIAL
POLE



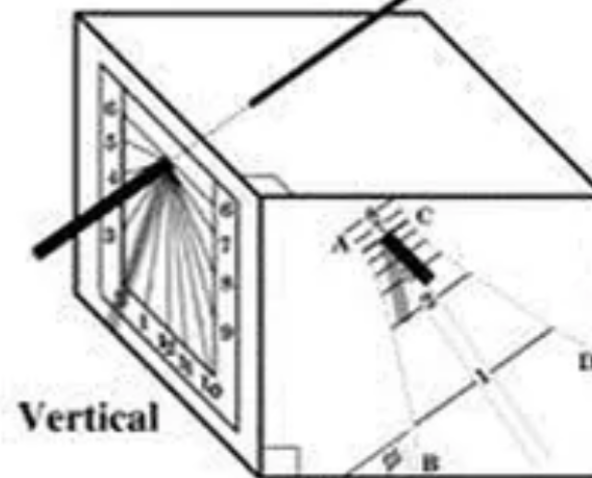
Equatorial Plate

SOUTH
CELESTIAL
POLE

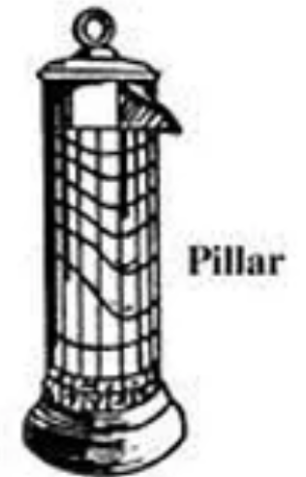


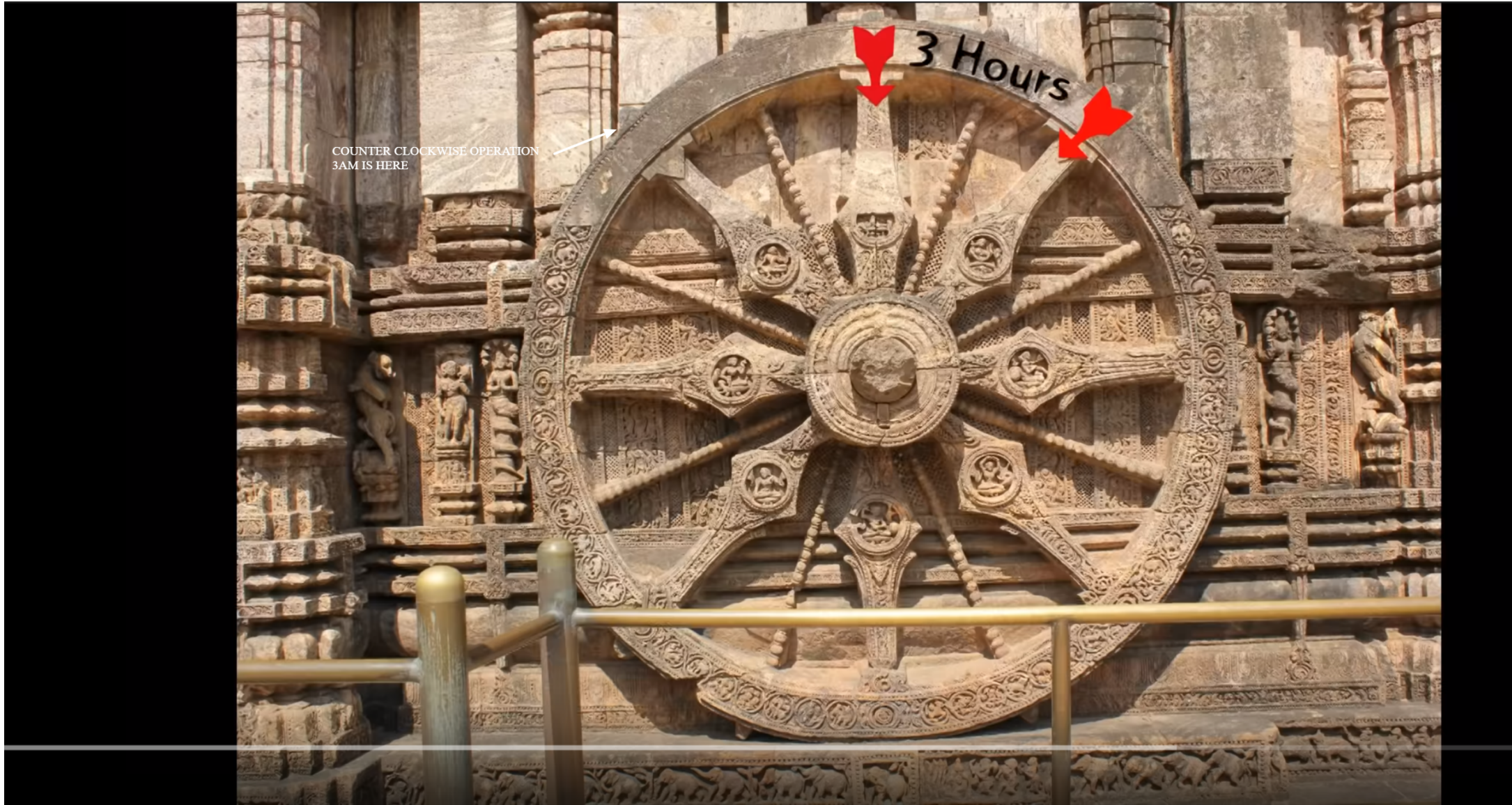
Equatorial Ring

SOUTH CELESTIAL POLE



Vertical





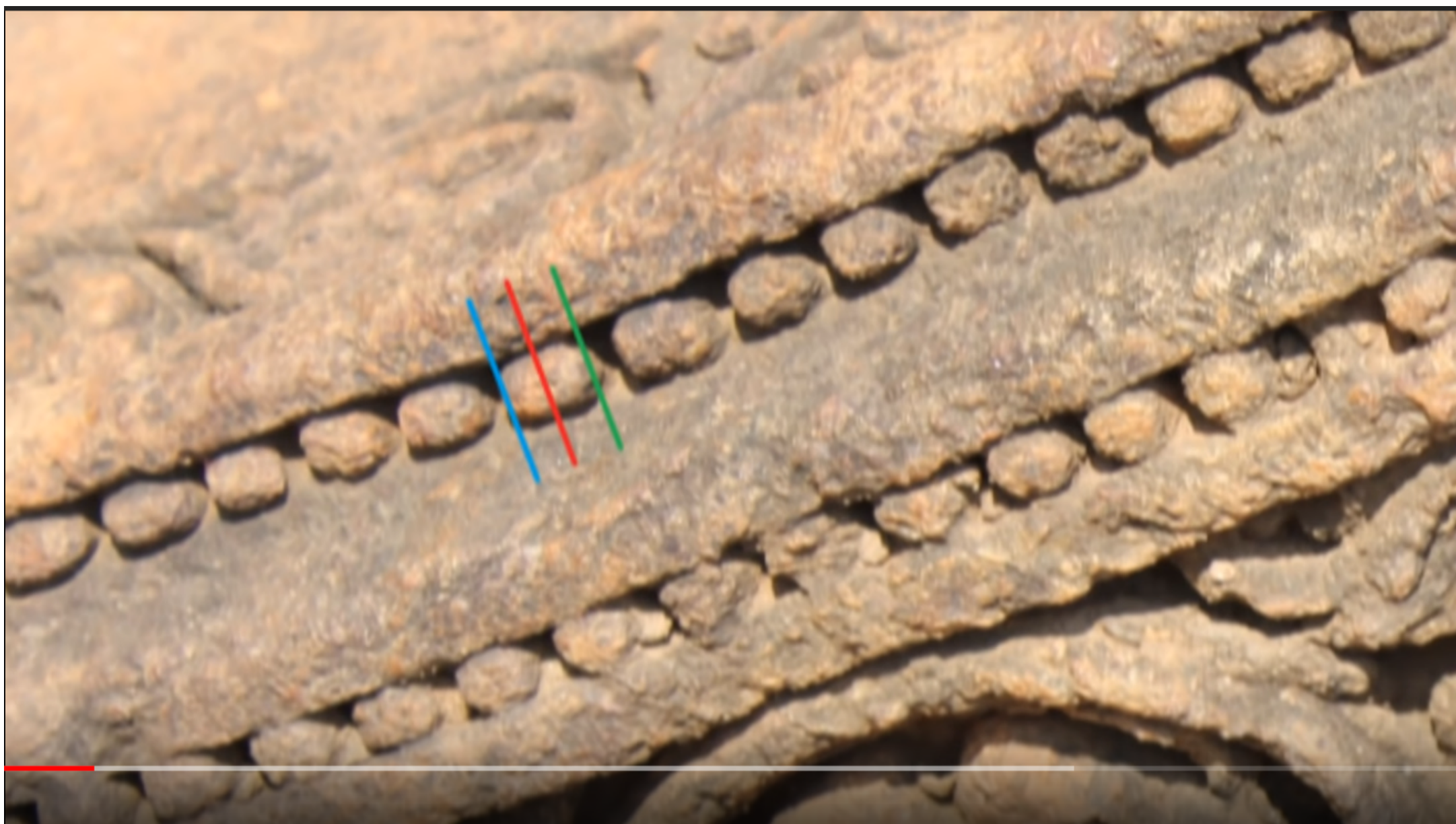
[#Ancienttechnology](#)

Sundial at Konark, India - Moondial too?

Up next

30 Beads Equal 90 Minutes
1 Bead Equals 3 Minutes



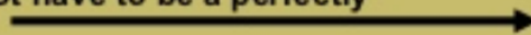


Sun Movement



Shadow Sticks

Step 1.) Place a stick in the ground about 3' high. It does not have to be a perfectly straight stick.



This system will give a relatively accurate indication of direction. It will remain accurate for approximately 2 weeks.

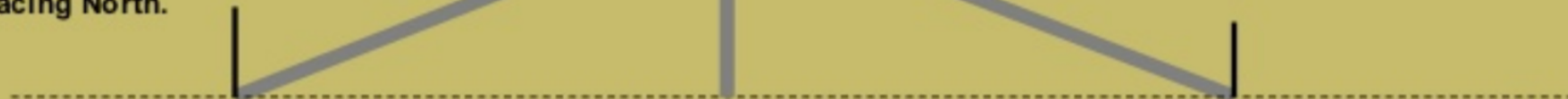
Step 5.) Draw an imaginary line between the tips of the shadows. This is your East/West line. Directly 90 degrees in between is North/South. Stand on the line with your back to the stick and you are facing North.

Step 2.) The first shadow cast is always the Westward shadow. Mark the tip of the shadow with a twig or small stone.



Step 4.) Mark the tip of last shadow of the day. The longer you wait, the more accurate the shadow stick method is.

Step 3.) Mark the tip of the shadow as it creates an arc with the movement of the sun. Multiple markings are best. Noon will have the shortest shadow.





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Redwood City, CA – **Ubiquitous Energy**, the leader in transparent solar technology, has produced the first demonstration commercial window façades using over 1 square meter of the company's truly transparent solar technology, ClearView Power™. The fiberglass-framed ClearView Power™ window units demonstrate the transparent photovoltaic technology's aesthetic beauty, high transparency, and color neutrality. "These window demonstrations are the result of many years of development and represent the great progress achieved with ClearView Power™. Recent advances led to the creation of these prototype façades, which are the world's first large-area, truly transparent solar window façades," said Ubiquitous Energy co-founder and CTO, Miles Barr.

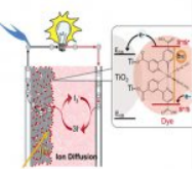
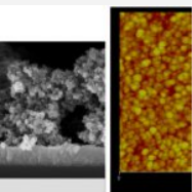

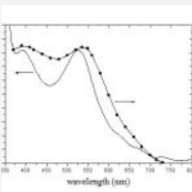

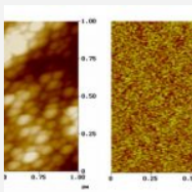
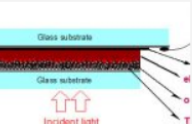



Each façade is made of six insulated glass units (IGUs) that are each 14 inches by 20 inches in size, totalling over 1 square meter of ClearView Power glass. The windows produce solar electricity in sunlight that can provide power to buildings for a wide range of applications including lighting, while simultaneously maintaining the performance of standard commercial window glass: over 50% transparency, neutral in color, and low emissivity (low-E) for energy efficiency. The lightweight, fiberglass window frames representing the latest and best in lightweight and high insulation framing were custom created by Alpen High Performance Products.

The key to our technology is the use of a solid electrolyte as opposed to liquid-electrolyte competing technologies, which suffer of instability and long term reliability problems for the end product. This technology will commercially produce the first solar cells with competitive performance and cost, based on a solid electrolyte and a transparent dye, giving significant technological advantage to the resulting solar panels.

Brite develops the process technology for the construction of photo-electrochemical solid solar cells based on new composite organic / inorganic lightweight nanostructured materials which in their majority are deposited by a purely chemical process at ambient conditions.

click on photos below to enlarge

  <p>Novel nanotechnological routes are followed to develop semiconductors with small particle size and also maintain the transparency of the solar windows in high level.</p>	  <p>Exploitation of the visible region of light by solar windows is succeeded by semiconductor photosensitization with organic dyes of high extinction coefficient.</p>	  <p>Nanocomposite transparent semiconductor films of different particle sizes can easily be developed.</p>	<p>Cross section of a transparent solar cell.</p>   <p>Novel nanocomposite solid electrolytes are developed promising durable and stable solar cells compared to current technologies.</p>
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COMPETITIVE ADVANTAGES

The developing technology has significant advantages over existing technologies i.e. Thin Film Silicon PV elements.

Components of Solid Dye-sensitized Solar Cells are produced at ambient conditions without special measures for purity, thus drastically **reducing the cost** of production.

Solid Dye-sensitized Solar Cells are transparent and can be used as "photovoltaic windows", for example, the southern side of buildings, or as monitor devices. This technology is not available in mass production today and is the focus of our company.

Depending on the used photosensitive dye, we can give the window a varied hue, thus an **aesthetic effect** chosen by the end user or building architect.

Works with **diffuse radiation** that can hit the window from any direction, from either side. This property is not available by any type of PV panels from any manufacturer today.

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- ① The sun's solar energy shines down onto the reflective collector.
- ② The sun's energy is reflected from the reflective parabolic solar concentrator and directed at the receiver.

